Turbulence

JSAT Briefing

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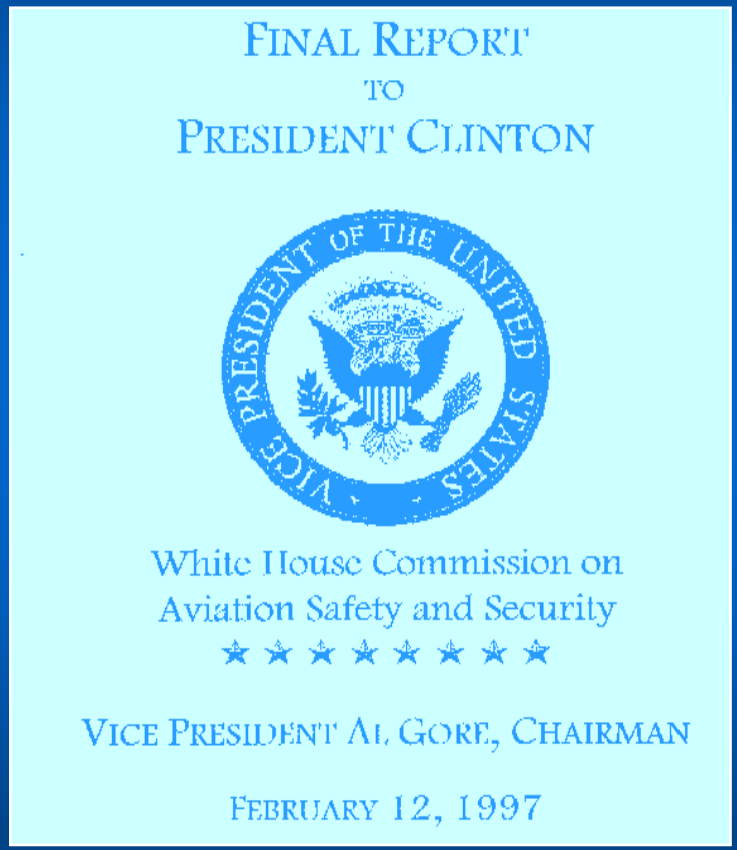
NASA Dryden Flight Research Center

In the U.S. our focus is set by the White House Commission on Aviation Safety

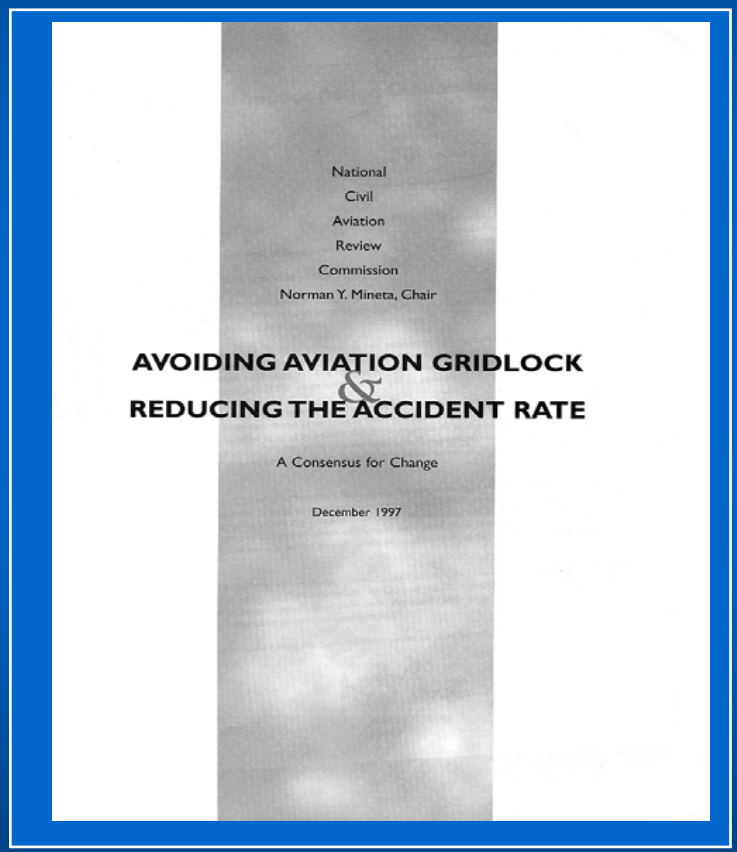


1.1 Government and industry should establish a national goal to reduce the aviation fatal accident rate by a factor of five within ten years and conduct safety research to support that goal.

1.2 The FAA should develop standards for continuous safety improvement, and should target its regulatory resources based on performance against those standards

The National Civil Aviation Review Commission (NCARC)

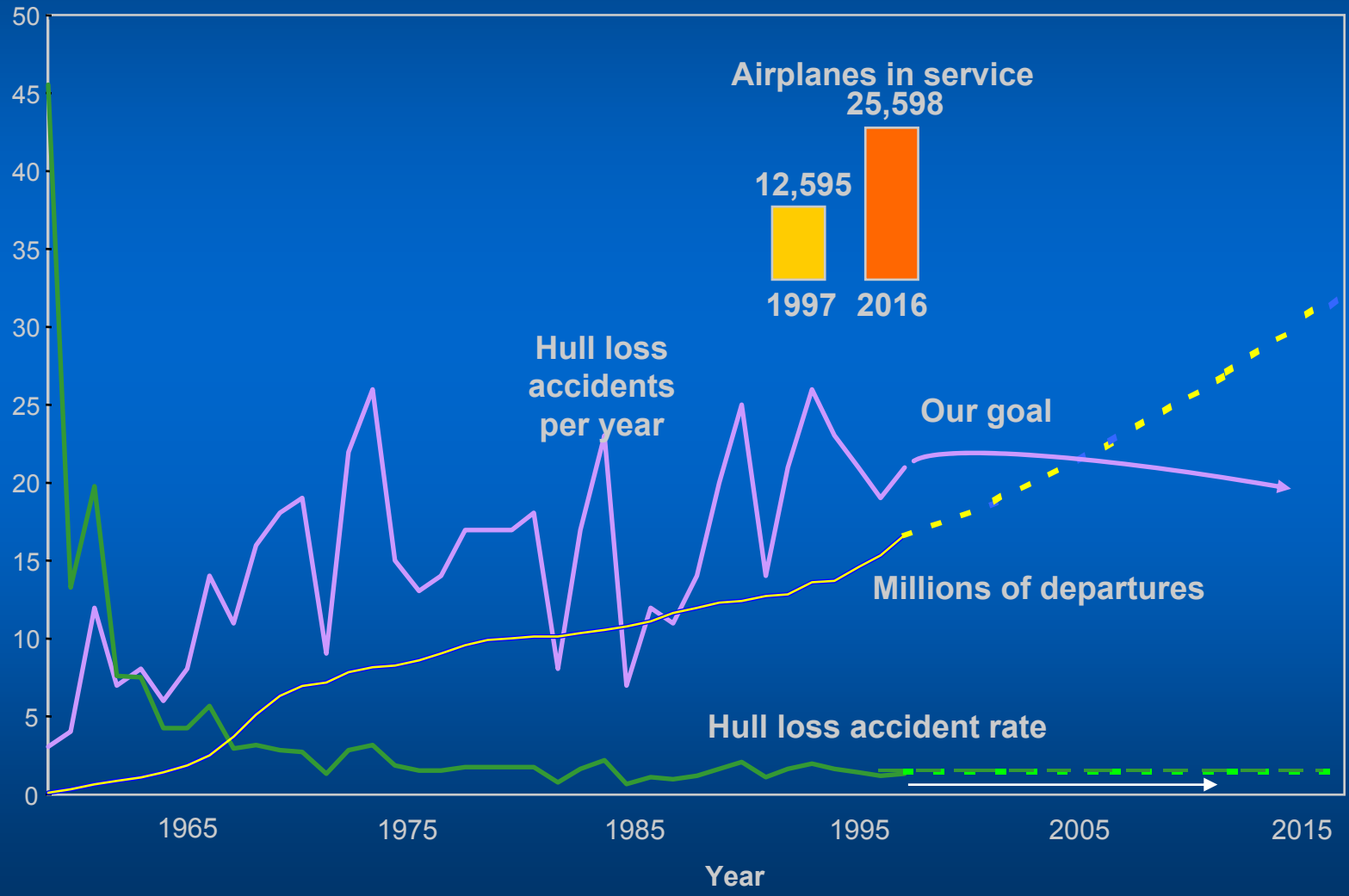
on Aviation Safety Provided Additional Direction



- **FAA and the aviation industry must develop a strategic plan to improve safety, with specific priorities based on objective, quantitative analysis of safety information and data.**
- **Government should expand on their programs to improve aviation safety in other parts of the world.**

Why worry about accidents?

Gore Commission Recommendation 1.1 - Government and industry should establish a national goal to reduce the aviation fatal accident rate by a factor of five within ten years and conduct safety research to support that goal.



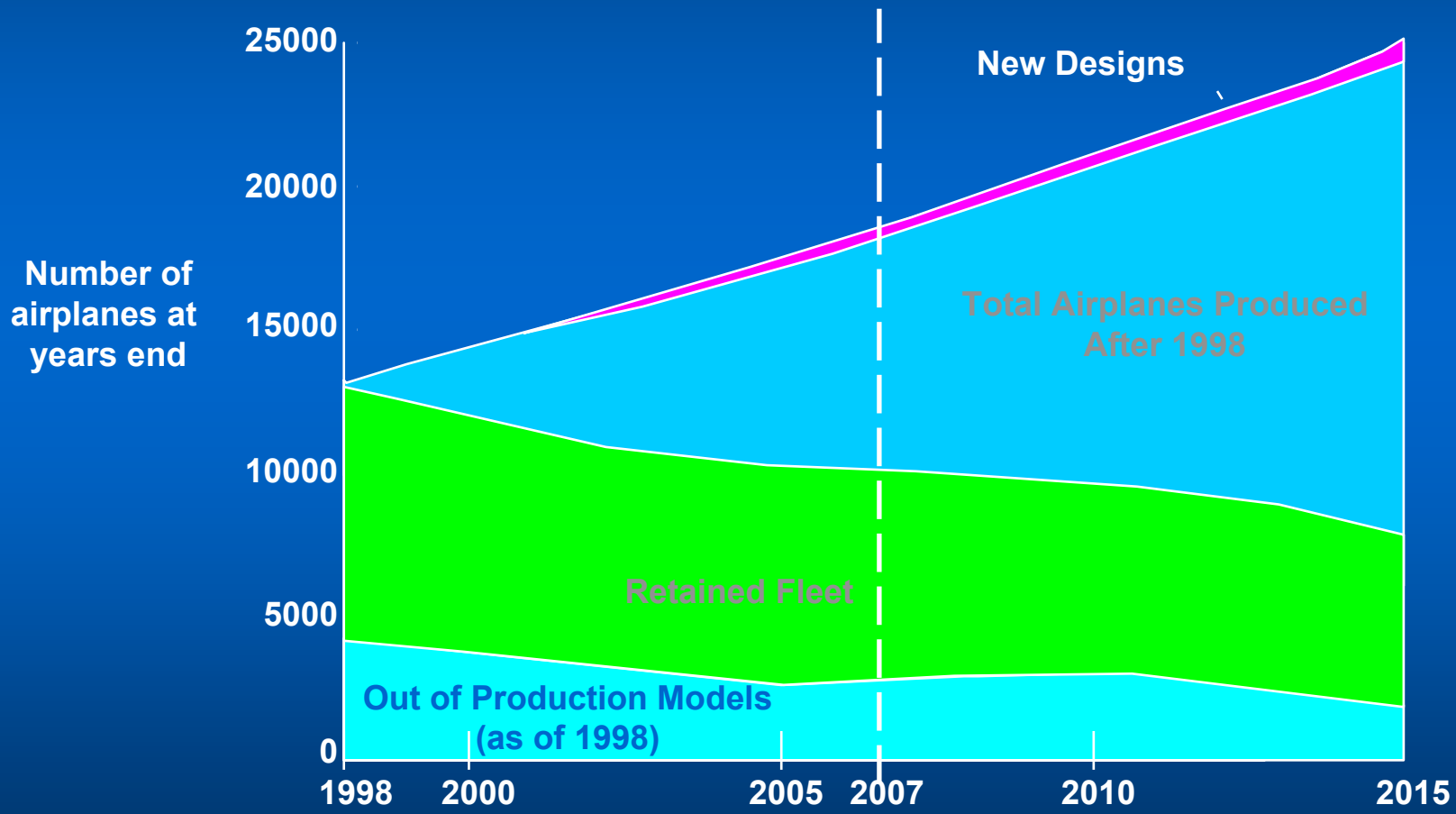
Jet Transports 60,000 lbs. or greater

Hull Loss Accident Rates by World Regions by Accident Site

Western-Built Transports, 1988 through 1997

*Insufficient fleet experience to generate reliable rate.

Potential for Totally New Airplane Designs to Affect Safety is Very Small



All Parts of Industry Must Work Together

- Each accident may involve many issues
- The degree of involvement varies with accident type and region of the world
- Data analysis will be used to determine actions

Safety Responsibilities Are Shared

Safe Airplane + Safe Operation + Safe Infrastructure = Safe Air Travel

Manufacturers

- Safe airplane design
- Safety enhancing technology development
- Flight and maintenance operations, recommendations, documents, training, and support
- Maintenance planning
- Safety related analysis
- Safety initiatives

Operators

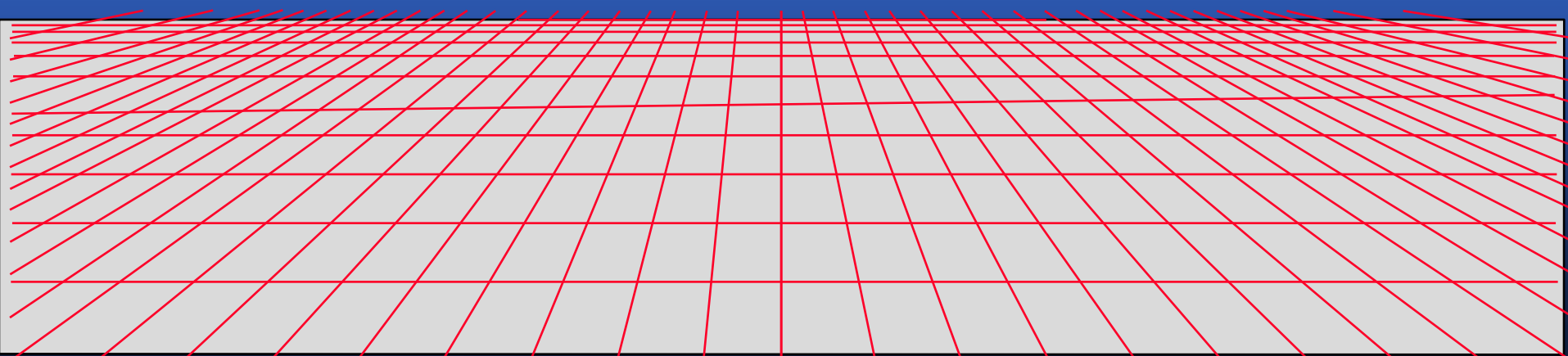
- Operations policy and procedures
- Airplane/pilot publications
- Approved maintenance program
- Maintenance, policy, and procedures
- Maintenance publications
- Safety program
- Training

Government *

- Aviation law
- Operations specification
- Rules and regulations
- Inspectors policy, procedures, and training
- Airline policy and procedures requirements
- Safety, health, environmental law, and regulations
- Navigation facilities/operations
- Airport facilities
- Departure enroute, arrival, approach policy, and procedures
- Air traffic control services
- Safety related analysis

* Including Air Traffic Service providers

Commercial Aviation Safety Team (CAST)



CAST Mission

Provide government and industry leadership to develop and focus implementation of an integrated, data driven strategy to improve commercial aviation safety.

Taken from Commercial Aviation Safety Team (CAST) Master Plan, dated 10/9/98

CAST Vision

Achieve the highest levels of safety in the domestic and international commercial aviation system by focusing on the right things prioritized to result in the greatest improvement in commercial aviation safety.

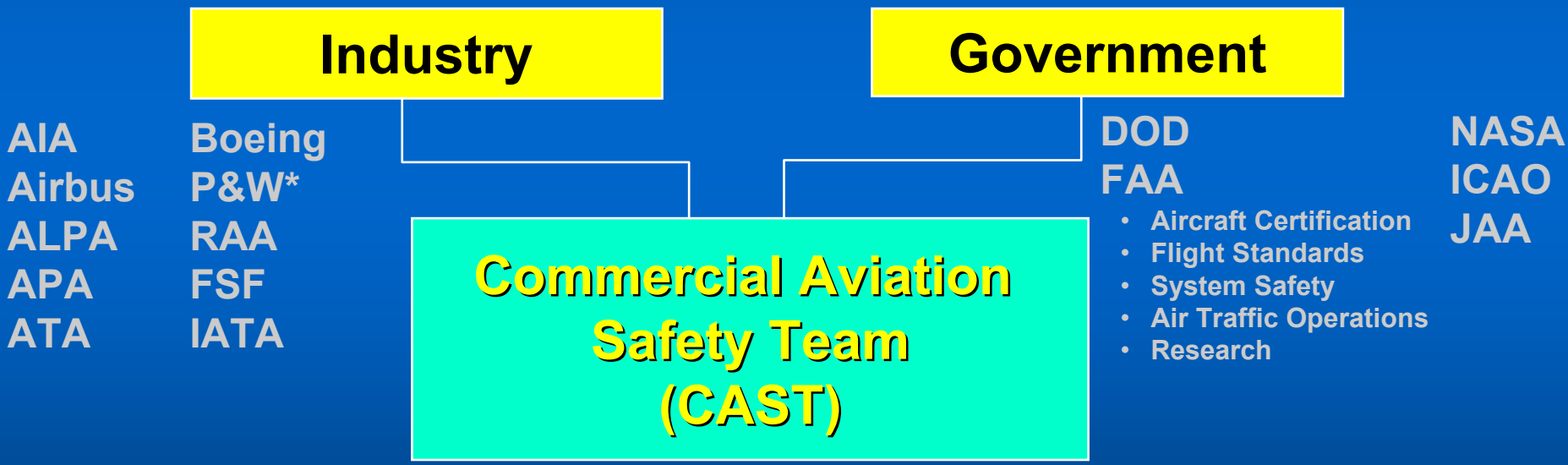
CAST Goal

Reduce the commercial aviation fatal accident rate by 2007.

Taken from Commercial Aviation Safety Team (CAST) Master Plan, dated 10/9/98

Working Together
Commercial Aviation Safety Team

FAA and the aviation industry must develop a strategic plan to improve safety, with specific priorities based on objective, quantitative analysis of safety information and data. ***NCARC recommendation dated 12/97.***



*Representing GE and RR

A FOCUSED AGENDA

GENERAL AVIATION

- Pilot Decisionmaking
- Loss of Control
- Weather
- Controlled Flight Into Terrain
- Survivability
- Runway Incursions

COMMERCIAL AVIATION

- Controlled Flight Into Terrain
- Loss of Control
- Uncontained Engine Failures
- Runway Incursion
- Approach and Landing
- Turbulence
- Weather

CABIN SAFETY

- Passenger Interference
- Passenger Seat Belt Use
- Carry-on Baggage
- Child Restraint

Improved data & Analysis

Human factors In operations & maintenance

JSAT Organizational Relationships

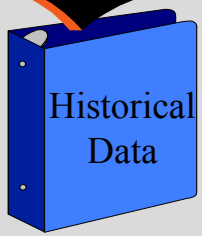
- Pilots
  - ALPA, APA
- Controllers
  - MIT Lincoln Laboratory
- Dispatchers
  - NATCA
- Forecasters
  - NWS
- Flight Attendants
  - AFA, APFA, IAM
- Aircraft Associations
  - ATA, ICAO, Flight Safety Foundation
- Airframe Manufacturers
  - Boeing, Airbus
- Avionics Manufacturers
  - Honeywell, Rockwell
- Government Agencies
  - USAF, FAA, NASA, Naval Research Laboratory
- US Air Carriers
  - American, Delta, United
- Universities
  - MIT, UCAR (NCAR)

Safety Analysis Process

1.

- NTSB Accident Incident Reports
- 21.3 Reports
- NASDAC data
- Airclaims data
- FOQA data
- Industry

CAST



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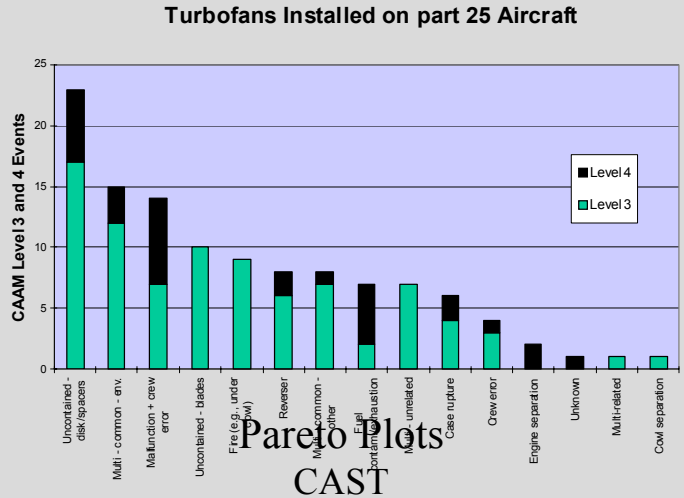

Pareto Plots

CAST

Safety Analysis Process

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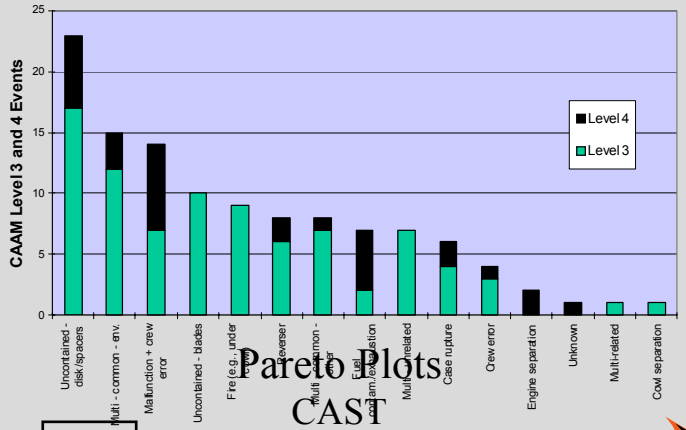
- Industry

CAST

Historical Data

2.



Pareto Plots

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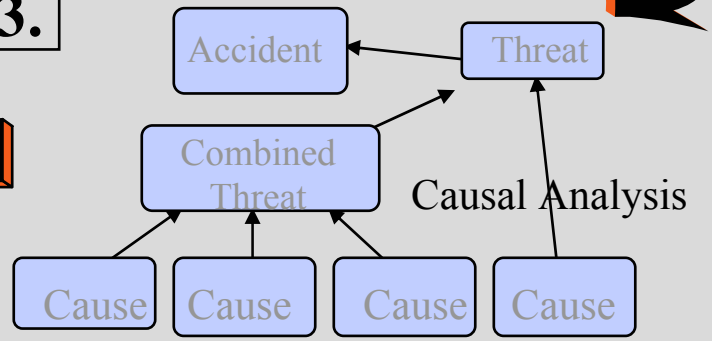
3.



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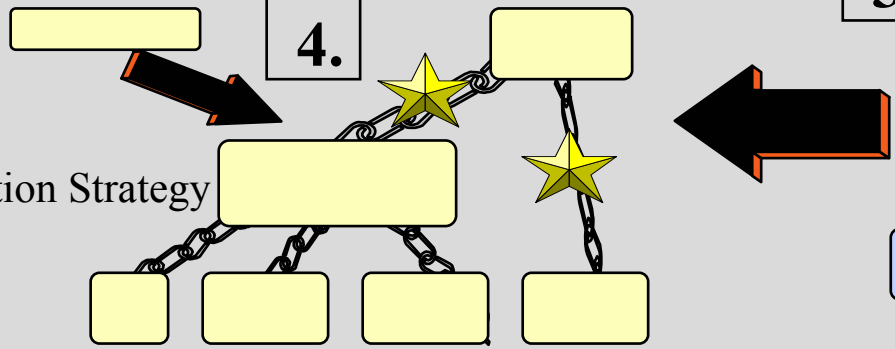
4.



Intervention Strategy

JSAT

Safety Analysis Process

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Historical Data

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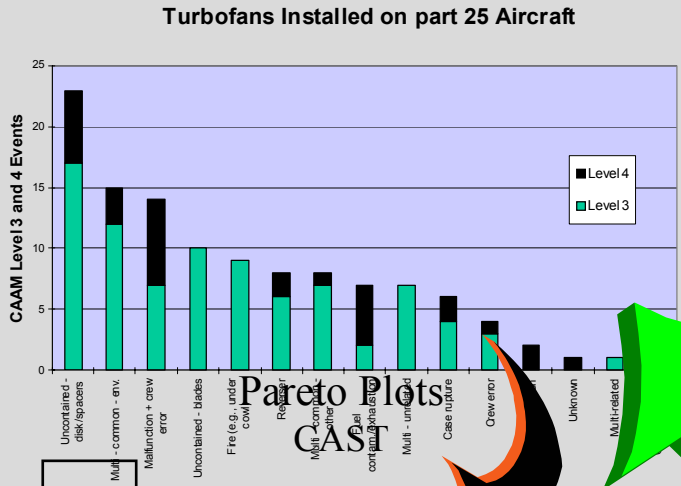


Pareto Plots CAST

3.

Accident

Threat

Combined Threat

Causal Analysis

Cause | Cause | Cause | Cause

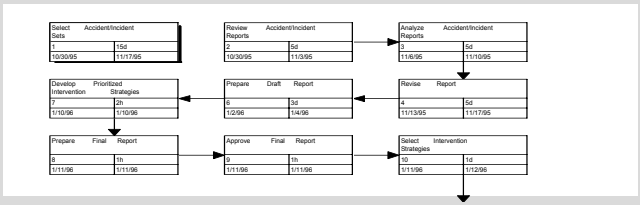
JSAT

4.

Intervention Strategy

JSAT

5.



Implementaion Strategy

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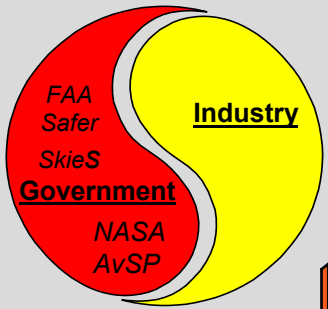

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Coordinated Plan

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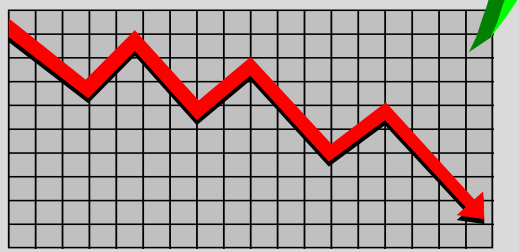
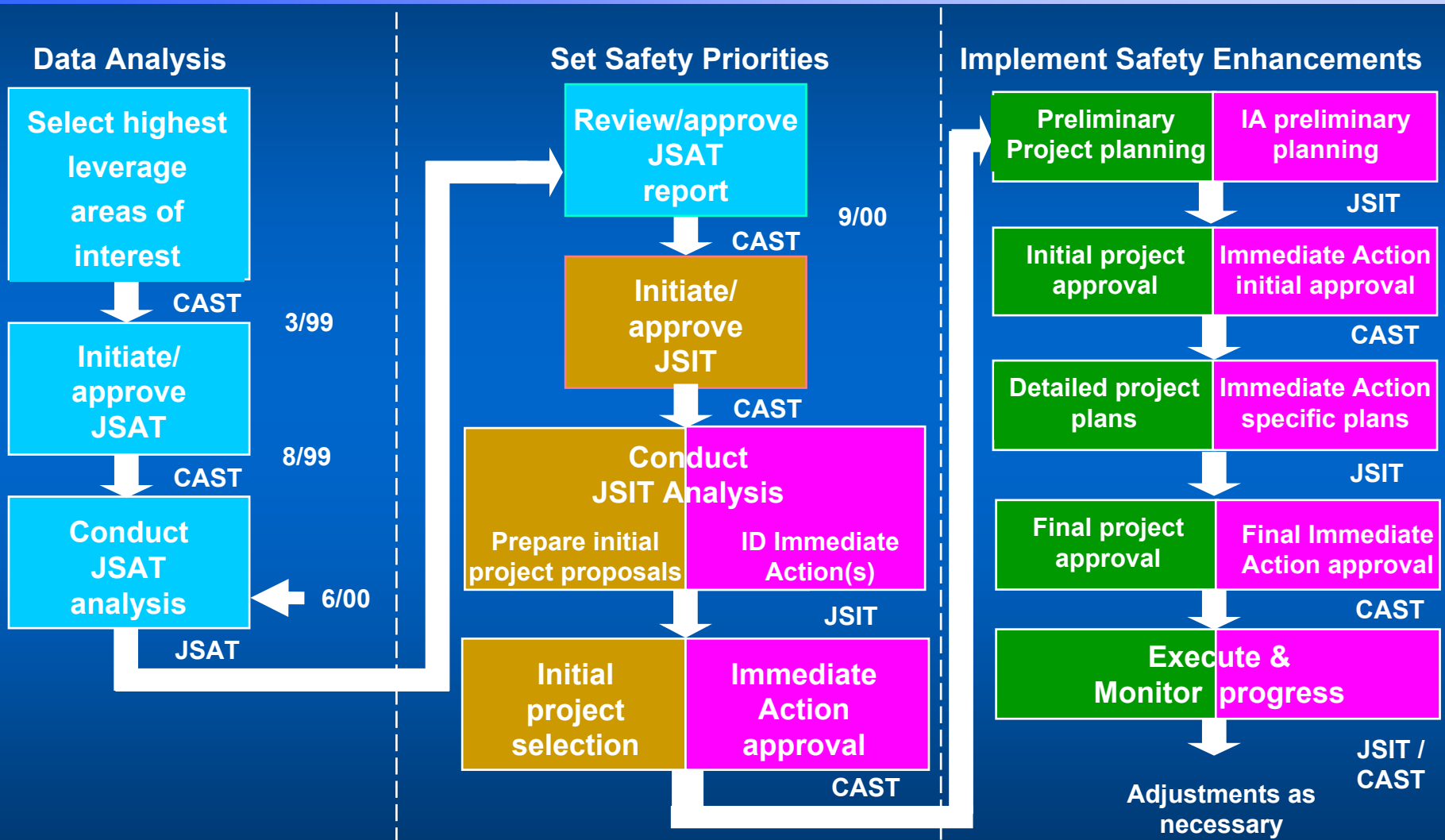


Measuring Progress to Goal

CAST Process Summary

- Government & Industry Partnership
- Integrated Focused Strategy
- Data-Driven
- Optimized for Safety Benefits
- Reviews of Results to Adjust Focus

JSAT Progress Status in the CAST Process



JSAT Status

- Accident Data Set Defined
- Event Sequences Developed
- Standard Problem Statements Defined
- Draft Interventions Developed
- Report to CAST 8/30/00